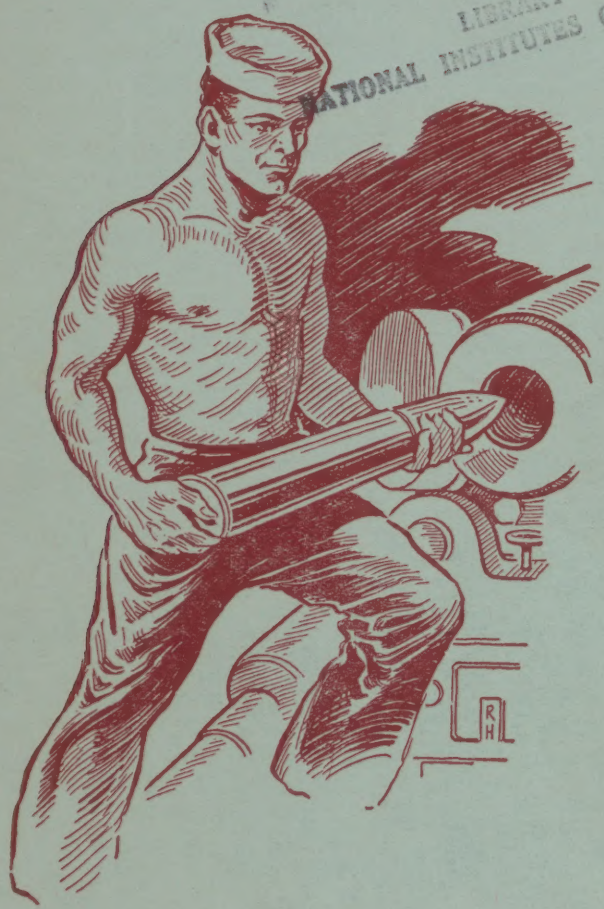
THE FIGHT FOR
TUBERCULOSIS CONTROL



STATE BOARD OF HEALTH
WISCONSIN

THE TUBERCULOSIS CONTROL PROGRAM

OF THE

WISCONSIN STATE BOARD OF HEALTH

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A TUBERCULOSIS CONTROL PROGRAM

The isolation of every existing case of active or infectious tuberculosis today would result in a marked decrease in the disease but not in its total eradication. Today's early case would soon progress to the communicable stage and start again spreading the seed. It is obvious, therefore, that any program aimed at the control of tuberculosis must include not only the discovery and isolation of all infectious cases, but also the finding and treatment of early non-infectious tuberculosis.

Various studies have shown that tuberculosis occurs in direct proportion to the length and degree of exposure to an active case, regardless of age, sex, color or economic status. Intimate and frequent contact occurs most often among the members of a family. It is only natural therefore, to expect families with tuberculosis histories to yield the largest number of new cases. Economic considerations make it impractical to X-ray the entire population, so we are forced to decide where a limited search for tuberculosis will prove the most fruitful. Contacts should hold a prominent place in any case finding program.

There are other considerations which influence one's decision when outlining a program to be followed and perhaps the most important of these is the accessibility of the group to be studied. Two groups lend themselves to mass study—namely: school children and industrial workers. The industrial group offers a better field for case finding as the incidence of tuberculosis increases with age to reach a peak during the productive years. A search for re-infection tuberculosis among school children is, for the most part, relatively unproductive and expensive whereas any survey among industrial workers will prove well worth the effort. Other groups worthy of careful consideration for inclusion in one's plans, because of special reasons, are Negroes, Indians, and Mexicans; low income families; foreign born population; medical students and nurses; pre natal patients; and inmates of mental hospitals and general hospital admissions.

The choice of a tool for finding cases of tuberculosis is influenced by three factors: accuracy, availability, and cost. The 14 x 17 X-ray film combined with sputum analysis offers the highest degree of accuracy and is the tool of choice for the practicing physician. For mass surveys, photo-fluorography offers many advantages over the standard X-ray, paper films, the fluoroscope and the tuberculin

test, even though verification of diagnosis by a 14 x 17 film is often necessary. Photo-fluorography is reasonably accurate, easily adaptable for rapid group studies and low in operating cost.

A well-balanced case finding program should provide for carefully selected tuberculin testing, X-raying of family and household contacts and photo-fluorographic mass surveys in industry, mental hospitals and certain other especially selected groups.

All suspected tuberculosis cases uncovered, including those men rejected at the military induction centers, should be followed closely until a diagnosis has been definitely established and proper isolation and treatment provided.

THE TUBERCULOSIS REGISTER

The Wisconsin Statutes require that all cases of tuberculosis be reported through the local health officer to the State Board of Health and further provide that the investigation and visitation of cases and the instruction of patients in the prevention of tuberculosis shall be the duty of the city and county public health nurse.

The tuberculosis control program of the State Board of Health is based upon the maximum use of existing medical and public health personnel in the field. The local physician is relied upon to make the diagnosis of a case regardless of whether or not the original suspicion was directed to the patient by his examination or through one of the mass surveys such as tuberculin testing, photo-fluorography, or examination by Selective Service. The follow up work is carried out by the public health nurses employed in cities and counties and by the sanatorium outpatient workers. The sanatoria, with their more than twenty-three hundred beds, are employed for the isolation, treatment, and rehabilitation of the patient. Supervision of the nurse's work in the field is maintained by the Bureau of Public Health Nursing and through the nine district advisory nurses of the State Board of Health.

A central register of tuberculosis cases is maintained at the office of the State Board of Health for all known cases of tuberculosis in the state. Cases are reported to the tuberculosis division by local health officers, physicians, city health departments, sanatoria, hospitals, the State Laboratory of Hygiene, and from Selective Service headquarters. Additional cases are obtained through our Bureau of Vital Statistics from birth and death records, and still other cases are reported by the Photo-fluorographic Survey Units.

Register cards are made out in triplicate on each case, each card having a specific function. The cards remaining in the Board of Health office are used as a central check file on all cases in the state and also serve as a means of ascertaining the number of days and weeks that patients have been in the sanatorium for the proper allotment of state aid for tuberculosis care. The second and third copies are mailed to the district office from which the third copy is distributed to the local public health nurse of the patient's residence for immediate follow up investigation of the patient and the family.

The second copy of the register card is retained at the district offices of the Board of Health where a visible card system is set up. The cards are arranged by nursing services in cities and counties so that the complete picture of the tuberculosis problem in any given area may be seen at a glance. The primary purpose of the visible case file in the district is to provide the district advisory nurse with a simple method of nursing supervision for all tuberculosis cases within her district and to act as a stimulant to more complete follow up work by the local public health nurse. It may also be used for obtaining quickly, up-to-date data needed for statistical studies in planning the proper distribution of the nurse's time in her program. Each card carries several colored signals, indicating the status of the case so that one can easily ascertain or tabulate such factors as the color of the patient, the admitting diagnosis, whether or not the patient is in a sanatorium, the results of sputum examinations, and whether or not nursing supervision is being carried out on the case. Suspected cases of tuberculosis are filed separately from the active cases and are not added to the active file until the diagnosis is made. Arrested cases are kept under nursing supervision for five years, but are not listed or filed with the active cases. In this way the active file lives up to its name and does not become burdened down with cases no longer requiring active supervision. Provision is made on the cards for a space for information regarding contacts and follow up examinations of patients. Information received at the central office from the sanatoria regarding the number of patients admitted to and discharged from the sanatoria is forwarded immediately through the district to the local nurse and this supplementary information is added to the case cards. The central office maintains a cross index on all tuberculosis cases so that even though some cases may again be reported if they have been once reported as a case they are not recorded a second time.

THE PUBLIC HEALTH NURSE AND THE TUBERCULOSIS CONTROL PROGRAM

From whom did he get it? To whom did he give it? These two questions are the great concern not only of the medical profession but also of the nursing profession.

The public health nurse, whether employed as a county, city, school, private agency, or industrial nurse spends a good deal of her time in finding out from whom the patient got tuberculosis and to whom he gave it. The public health nurse, who carries out a generalized program which in the main consists of health teaching to expectant mothers, communicable disease control including venereal disease and tuberculosis, as well as teaching simple home nursing procedures, looks for possible sources of infection in the school, in the home, in the office, or in the plant in which she may be employed. Tuberculosis is no respecter of nationality, creed or age. Therefore, whenever a case is suspected of having tuberculosis it becomes essential that those with whom the patient is closely associated be included in the case-finding program. It is here where the public health nurse can function best because in any well developed public health nursing service she not only contacts the individual in the place of work, whether office or plant or school, but follows through by home visits.

It is in the home that the public health nurse is able to do her best work. In visiting the home she solicits the cooperation not only of the mother but also of the father and the household, and in discussing the health needs of the entire family she does not overlook those members who may be only temporary members of that household; such as, maids, farm hands, as well as guests who may make a prolonged stay. The public health nurse discusses with the members of the family the symptoms of tuberculosis; such as, prolonged fatigue, loss of weight, coughs, and such other symptoms which have been noted in her contact with members of the family. The public health nurse is interested in the health of the grandparents who frequently aid in taking care of the children. By getting a complete picture of the close association of members within families it is frequently possible to get the lead to the possible source of infection.

It is the public health nurse who explains the recommendations made by the physician of the family's choice; and should a member of the family have been a patient in the sanatorium, it is she who instructs both the patient and those responsible for his care in the home, how to continue the treatment begun in the sanatorium and how to safeguard the health of the rest of the family.

With the advance in medical science, a patient afflicted with tuberculosis need no longer have a hopeless feeling for the future. The recovered case of tuberculosis can live a normal, useful and happy life, but he cannot live as if he had never had tuberculosis. He cannot afford to get as tired as other people, and this means a continual adjustment of his life. It is the public health nurse who can, by frequent contacts with the patient as well as the members of the family, stimulate the members of the family and the patient in meeting this problem in a wholesome manner.

The health program which is taught to the patient suspected of having or suffering from tuberculosis is of benefit to the entire family because it is chiefly concerned with obtaining adequate rest, nutritive foods, a reasonable amount of recreation, regular hours of work, and medical supervision in the event there is a deviation from the normal such as when there are colds or coughs or aches and pains. The public health nurse interprets to the family certain rules and regulations, promulgated by the State Board of Health and carried out by local boards of health, which are made to safeguard the community in which the tuberculosis patient lives.

The public health nurse in your community will assist you, upon your request as well as upon the request of the physician who is in charge of the case, to do your part in understanding the underlying principles which need to be understood if both the patient and the family can do their part in preventing the spread of tuberculosis or in aiding in obtaining the patient's cooperation toward recovery.

CASE FINDING BY PHOTO-FLUOROGRAPHY

The State Board of Health operates a 35 mm. photo-roentgen unit to supplement the local case finding programs. This unit is used primarily in making tuberculosis surveys in industry as a means of finding cases of tuberculosis among apparently healthy adults. The family physician is relied upon to make the final diagnosis, as the 35 mm. film is used only as a means of locating suspected cases. The unit is capable of taking from 200 to 250 films per day and over 85,000 have been taken during the past two and one-half years. After the X-rays are taken, the films are processed in a central laboratory at the Board of Health and read by the medical staff of the State Tuberculosis Sanatorium. Approximately two per cent of the persons examined in this original survey have been reported as tuberculosis or suspected tuberculosis, but after follow up examinations by the local physicians using full size X-rays, the number of significant cases diagnosed is reduced to approximately one per cent.

Persons who are found to have normal lungs or healed primary infections are sent a printed notice to this effect. Those reported with tuberculosis or suspected tuberculosis are sent a notice to see their family physician for further examination and study. The family physician, named by the patient at the time the X-ray was taken, is mailed a reading of the 35 mm. photo-fluorogram. One copy of this reading is kept on file at the State Sanatorium, and the second one is sent to the local public health nurse. The nurse calls on the family physician and if the patient with suspected tuberculosis does not visit the doctor within a reasonable time, the nurse makes a contact visit on the patient and arranges for his examination and for the examination of contacts if the case proves to be tuberculosis.

Practical experience with this type of survey has shown it to be an efficient means of locating new cases of tuberculosis with a comparatively high percentage of these cases being found in the early stages of the disease before any symptoms have made their appearance.

This unit, employed by the Board of Health, consists of a condenser discharge apparatus with a capacity of one half microfarad and a voltage range up to 100 k. v. p. This type of apparatus has the advantage of operating on a 110 volt alternating current line. The size of the focal spot of the tube is approximately 3 mm. The distance employed is 40 inches and the exposure time approximately 1/15 second. The photographic equipment consists of an electrically operated 35 mm. camera, with a specially treated 1.5 lens, capable of holding 50 feet of film. An average of 8 X-rays are taken on each foot of film. The apparatus is mounted in a bus with complete dressing room, control room and dark room facilities.

Over 36,000 X-rays were taken in 1943. Sixteen of every thousand taken revealed active, suspicious or arrested tuberculosis. In industrial centers 11 per 1,000 were discovered, in non-industrial centers 18 per 1,000, while in county homes and asylums the ratio was 49 per thousand. Assuming that the suspicious cases would be minimal, the unit discovered 85 per cent of the cases in the minimal stage of the disease.

Impressed with the results of the 35 mm. photo-roentgen unit and realizing that studies have shown that over one per cent of all hospital admissions have active tuberculosis, the State Board of Health has recently purchased a stereoscopic Duplex Photo-roentgen Unit, taking pictures four inches by ten inches in size. This model is a 200 milliampere unit having a range up to 100 k.v.p. It operates on a voltage of 220, 60 cycle alternating current and requires about 60 amperes. This unit will be portable but not mobile. It will be set up in the larger general hospitals for a period of months in order to demonstrate the advisability of taking routine chest X-rays on each hospital admission.

TUBERCULOSIS LEGISLATION

The Wisconsin Legislature has from time to time created laws placing the authority and responsibility for the control of tuberculosis in the hands of the State and local boards of health. Fundamental control functions such as reporting and registration of cases, case finding, follow-up investigation, and sanatorium care are fully covered by specific legislation.

Statutes provide for both the voluntary admission and compulsory commitment of patients to tuberculosis sanatoria.

Any person suffering from tuberculosis may apply for admission to any Wisconsin tuberculosis sanatoria and be admitted upon presentation of a certificate of medical examination and a court determination as to legal settlement and general financial ability. Patients who are found by the judge to be unable to pay for their care can be admitted as public charges in which case the state pays $7.00 per week towards their care and the county in which legal settlement is established pays the balance of the per capita cost. Whenever a patient has no legal settlement in the state, the total cost for such care is borne by the state. Philanthropic tuberculosis sanatoria, if approved by the State Board of Health may admit patients in the same manner as provided for county sanatoria.

Any person afflicted with tuberculosis as shown by laboratory examination who fails to comply with the tuberculosis rules of the State Board of Health may be committed to a tuberculosis sanatorium and restrained from leaving. The tuberculosis rules provide

for quarantine of the active case in the home when other means of handling persons dangerous to the health and welfare of the public prove unsatisfactory.

The legislature has authorized any Wisconsin county to establish and operate a tuberculosis sanatorium and has provided means for these counties to amortize the cost of expansion and improvements in existing sanatoria. Provisions have been made for establishment and operation of out-patient departments or public health dispensaries by counties to be governed by the same body as the county tuberculosis sanatorium.

All of the functions and powers and duties relating to the distribution of state aid for county tuberculosis sanatoria and to the supervision of the county tuberculosis sanatoria, and state sanatorium and the state tuberculosis camp are vested in the State Board of Health.

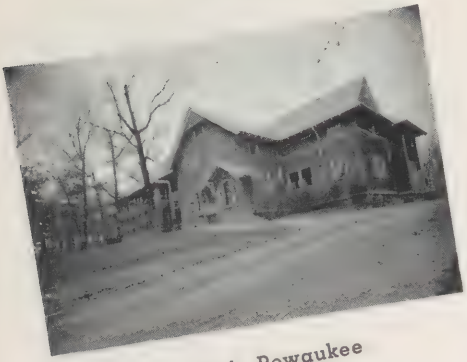
State funds are provided by Statute in a sum sufficient to pay state aid to county sanatoria with a special appropriation for the operation of the state tuberculosis sanatorium and state tuberculosis camp. Federal funds are used for the administration of the tuberculosis division of the State Board of Health and for the operation of special case finding programs in industry carried out through this division.

SANATORIA IN WISCONSIN

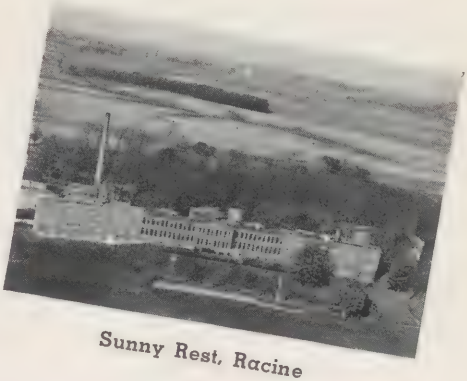
Wisconsin has in round figures 2,400 beds available in sanatoria for the care of tuberculosis. There are 17 county institutions varying in bed capacity from 42 to 588, two philanthropic institutions and the State Sanatorium. The Lake Tomahawk State Camp is operated for the rehabilitation of male patients who have completed their sanatorium treatment at one of the other institutions. Each of the county institutions is operated under the direction of a board of trustees and may have either a full time physician as superintendent and medical director or a graduate nurse as superintendent and a part time medical director.

The services offered by the sanatoria vary with each institution, some giving complete surgical care and others having this work carried out at local hospitals or at the Wisconsin General Hospital. All of the institutions offer complete nursing, medical and diagnostic services excepting Lake Tomahawk Camp, which is not operated as a hospital unit. The sanatoria recognize the value of the out-patient clinic to carry out ambulatory pneumothorax treatments, follow up investigation of discharged patients and to assist the local health departments in their case finding programs.

VIEWS OF WISCONSIN'S TUBERCULOSIS SANATORIA

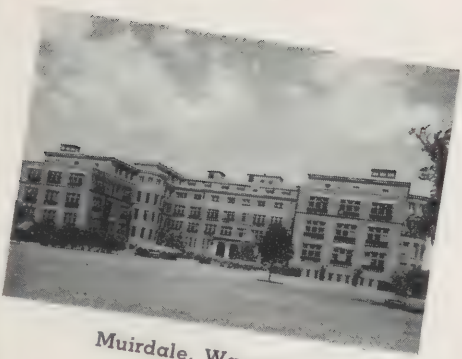


The Oak, Pewaukee

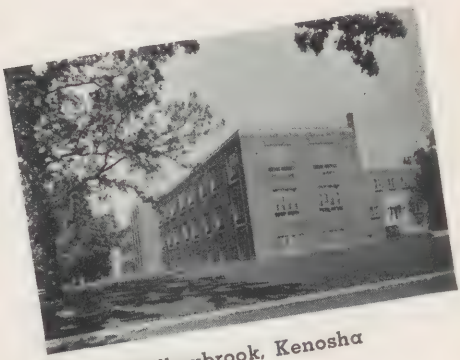


Sunny Rest, Racine

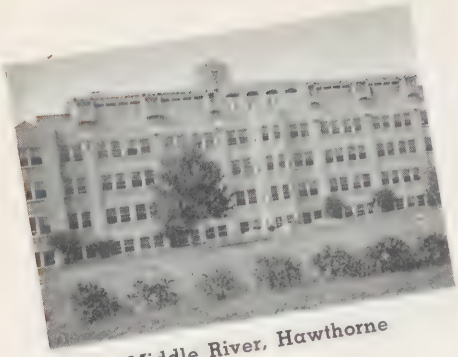
Wisconsin State Sanatorium, Statesan



Muirdale, Wauwatosa



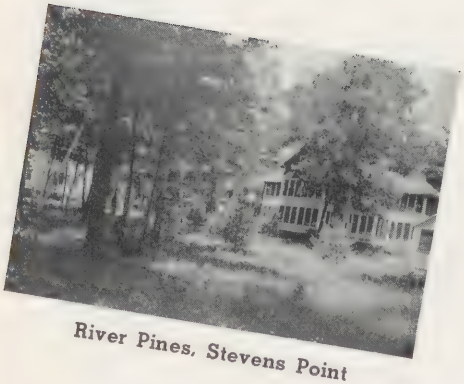
Willowbrook, Kenosha



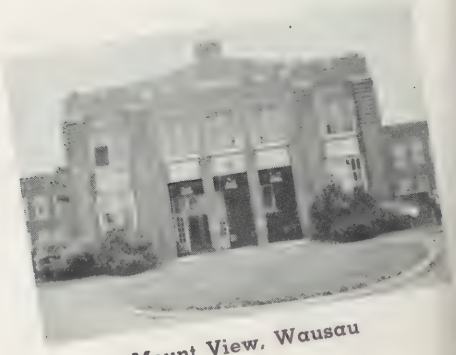
Middle River, Hawthorne

Pure Air, Bayfield

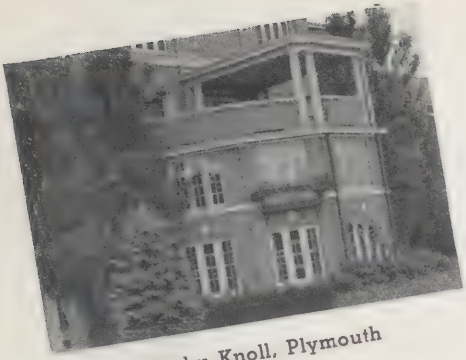
Lake Tomahawk Camp



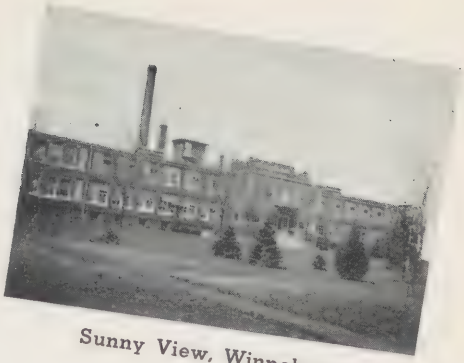
River Pines, Stevens Point



Mount View, Wausau



Rocky Knoll, Plymouth

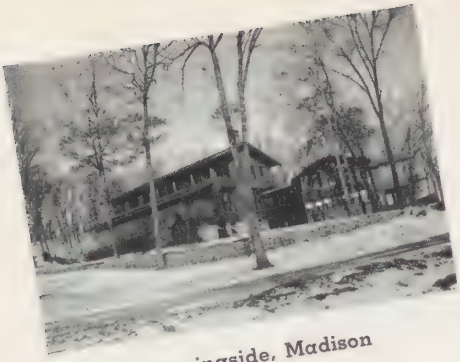


Sunny View, Winnebago

Riverview, Kaukauna

Maple Crest, Whitelaw

Hickory Grove, West De Pere



Morningside, Madison

Lake View, Madison

Pinehurst, Janesville

Forest Lawn, Jefferson

Mt. Washington, Eau Claire

Oak Forest, Onalaska

Vocational training and rehabilitation activities are carried out as an essential and integral part of tuberculosis care and increased emphasis is being placed on this phase of the program. The Lake Tomahawk State Camp has special facilities for the vocational training of male patients.

Professional services in the sanatoria are of a high quality and are maintained through staff conferences, scientific meetings, and by the employment of medical, surgical and diagnostic consultation.

INTERPRETATION OF STATISTICAL DATA

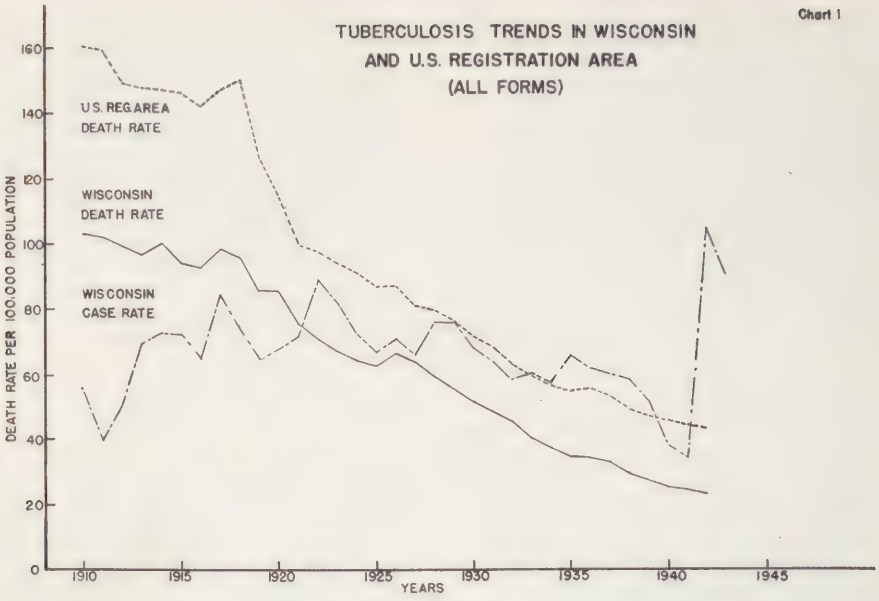
In looking at the tuberculosis picture as presented by a statistical analysis it must be remembered that there are numerous factors bearing upon the trends of both mortality rates and costs of adequate care. The decrease in the number of deaths from 1,217 to 740 in the past ten years shows conclusively the success of the efforts which have been made in the interest of tuberculosis control.

Chart I is self-explanatory in that it emphasizes a fact generally known, Wisconsin's decline in tuberculosis mortality compares very favorably with that of the United States as a whole. The case rate curve reveals a marked rise in 1942. This does not mean that Wisconsin had more cases that year than formerly but that discovery and reporting of cases improved. Some of the reasons for the improvement were the establishment of the register, the reporting of cases discovered at the induction center by Selective Service and the discovery of cases by the traveling X-ray units.

Chart II shows the urban–rural rate comparisons. As might be expected, the more congested and industrial areas have been slower to respond to control measures. The United States rural rates are now higher than urban rates. In Wisconsin urban rates are higher than rural rates and have been since 1934.

The age-sex story of tuberculosis deaths is told in Chart III. There has been a shift during the past decade indicating that the peak of the mortality curve is now at a later period in life than it was some twenty years ago. However, the sex factor holds constant to the extent that the rate is higher among males than among females in the age groups thirty-five and over. After reaching the age of thirty, a woman's chances of dying of tuberculosis become increasingly less. This probably can be attributed in some measure to the fact that, in normal time, women upon reaching the age of thirty lead a less strenuous existence and are past the age of greatest reproductivity and physical strain.

Chart 1



In order to present the facts of tuberculosis mortality in a manner which facilitates study and comparison, two maps have been prepared and included. One may, by studying the following maps and table, arrive at some conclusion as to the extent of the problem remaining in a given community. In looking for reasons why one county has a larger problem than another one must take into consideration a number of the following factors: the size and density and character of the population; the economic status of the population, the extent of the public health and medical program for the control of tuberculosis; the length of time the program has been functioning; the facilities for case-finding and the facilities for the follow-up of contacts and for the administration of the program as a whole. Communities having a large number of cases still undiscovered should study their programs in an effort to determine whether the facilities at their disposal are being used to the best advantage.

Improved living standards, advances in the field of Industrial Hygiene, the constant introduction of newer medical methods and the consistent growth of nursing services all combine to point toward a continuation of the progress made in the past.

Chart 2

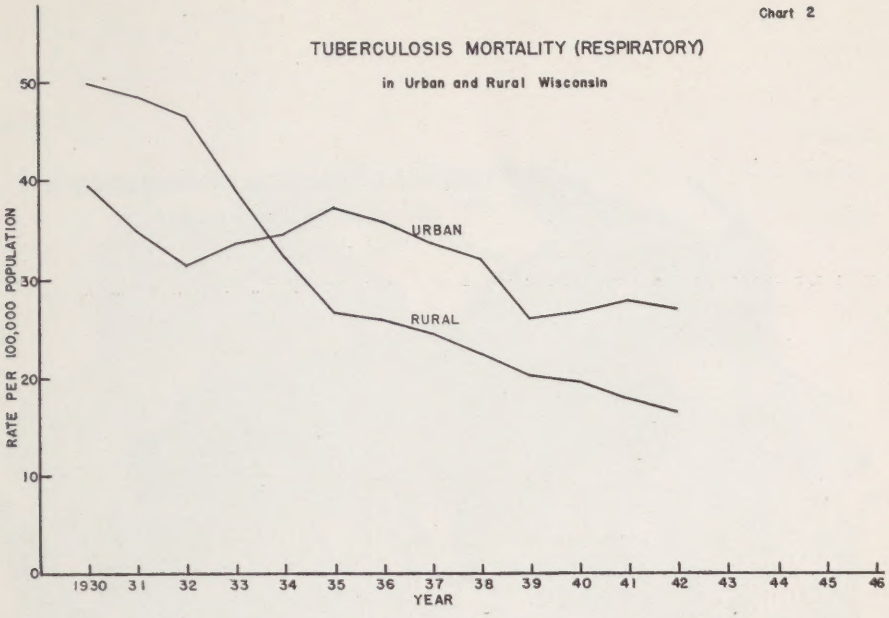


Chart 3

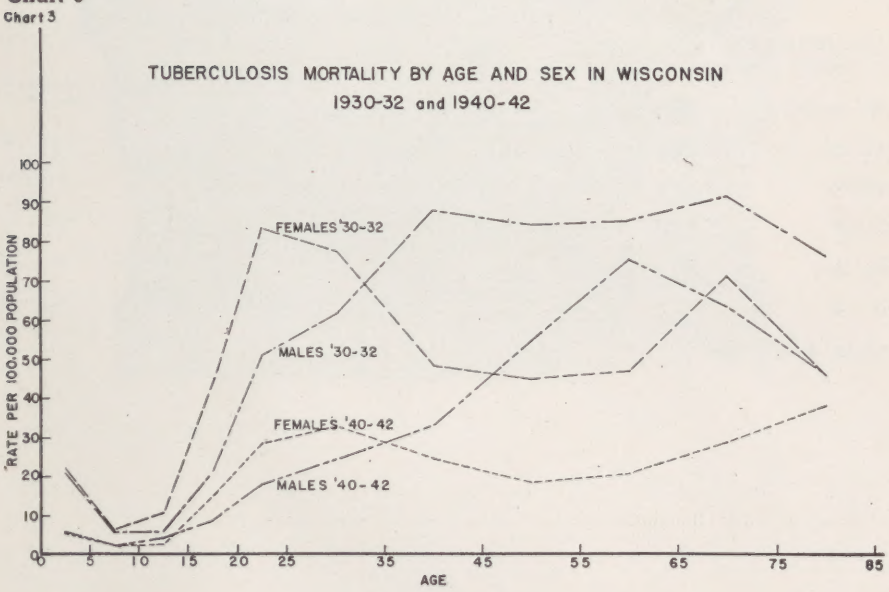


Chart 4

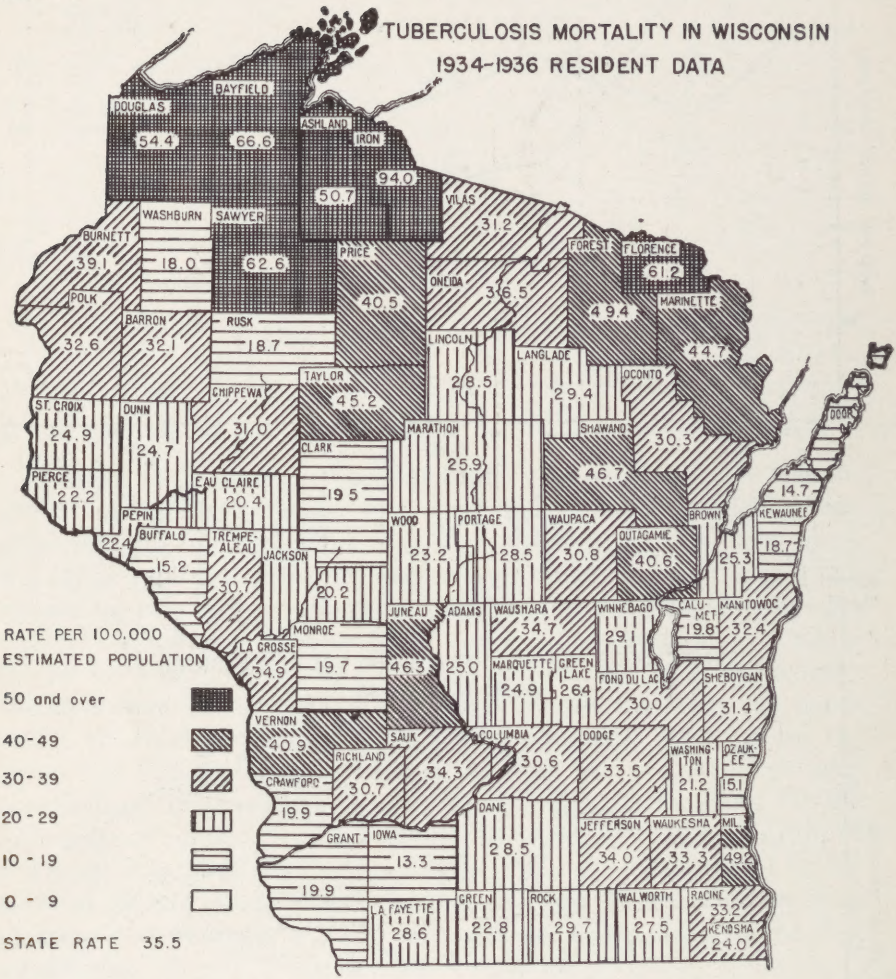
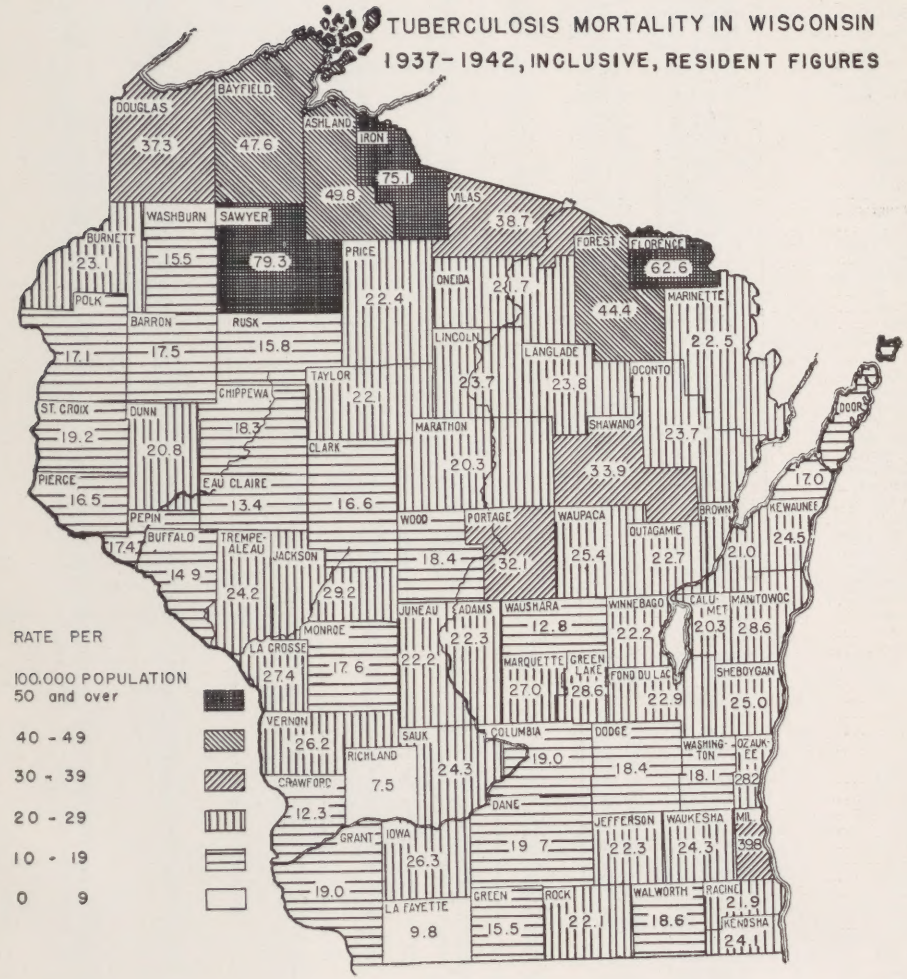

TUBERCULOSIS MORTALITY IN WISCONSIN
1934-1936 RESIDENT DATA
BAYFIELD
DOUGLAS
54.4
66.6
ASHLAND
IRON
94.0
50.7
VILAS
31.2
WASHBURN
SAWYER
BURNETT
39.1
18.0
62.6
PRICE
40.5
ONEIDA
36.5
FOREST
FLORENCE
61.2
MARINETTE
49.4
44.7
POLK
32.6
BARRON
32.1
RUSK
18.7
LINCOLN
28.5
LANGLADE
29.4
OCONTO
30.3
TAYLOR
45.2
CHIPPEWA
31.0
ST. CROIX
24.9
DUNN
24.7
MARATHON
25.9
SHAWANO
46.7
DOOR
14.7
CLARK
19.5
PIERCE
22.2
EAU CLAIRE
20.4
WOOD
23.2
PORTAGE
28.5
WAUPACA
30.8
BROWN
25.3
KEWAUNEE
18.7
PEPIN
22.4
BUFFALO
15.2
TREMPEALEAU
30.7
JACKSON
20.2
OUTAGAMIE
40.6
CALUMET
19.8
MANITOWOC
32.4
JUNEAU
46.3
ADAMS
25.0
WAUSHARA
34.7
WINNEBAGO
29.1
MONROE
19.7
LA CROSSE
34.9
MARQUETTE
24.9
GREEN LAKE
26.4
FOND DU LAC
30.0
SHEBOYGAN
31.4
VERNON
40.9
SAUK
34.3
COLUMBIA
30.6
DODGE
33.5
WASHINGTON
21.2
OZAUKEE
15.1
RICHLAND
30.7
CRAWFORD
19.9
DANE
28.5
JEFFERSON
34.0
WAUKESHA
33.3
MILWAUKEE
49.2
GRANT
IOWA
13.3
19.9
LAFAYETTE
28.6
GREEN
22.8
ROCK
29.7
WALWORTH
27.5
RACINE
33.2
KENOSHA
24.0
RATE PER 100,000
ESTIMATED POPULATION
50 and over
40-49
30-39
20-29
10-19
0-9
STATE RATE 35.5

Chart 5


TUBERCULOSIS MORTALITY IN WISCONSIN
1937-1942, INCLUSIVE, RESIDENT FIGURES
DOUGLAS
37.3
BAYFIELD
47.6
ASHLAND
49.8
IRON
75.1
VILAS
38.7
FOREST
FLORENCE
62.6
WASHBURN
SAWYER
79.3
BURNETT
23.1
15.5
POLK
17.1
BARRON
17.5
RUSK
15.8
PRICE
22.4
ONEIDA
21.7
MARINETTE
44.4
22.5
LINCOLN
23.7
LANGLADE
23.8
OCONTO
TAYLOR
22.1
CHIPPEWA
18.3
ST. CROIX
19.2
DUNN
20.8
CLARK
MARATHON
20.3
SHAWANO
23.7
DOOR
33.9
PIERCE
16.5
EAU CLAIRE
13.4
16.6
PEPIN
17.4
BUFFALO
TREMPE-ALEAU
14.9
JACKSON
24.2
29.2
WOOD
PORTAGE
18.4
32.1
WAUPACA
25.4
OUTAGAMIE
22.7
BROWN
21.0
17.0
KEWAUNEE
24.5
CALU-MET
20.3
MANITOWOC
28.6
WINNEBAGO
22.2
JUNEAU
22.3
ADAMS
WAUSHARA
12.8
MONROE
LA CROSSE
27.4
17.6
22.2
MARQUETTE
27.0
GREEN LAKE
28.6
FOND DU LAC
22.9
SHEBOYGAN
25.0
VERNON
26.2
SAUK
24.3
COLUMBIA
19.0
DODGE
18.4
WASHING-TON
18.1
OZAUK-EE
28.2
RICHLAND
7.5
CRAWFORD
12.3
DANE
19.7
JEFFERSON
22.3
WAUKESHA
24.3
MIL.
39.8
GRANT
IOWA
26.3
19.0
LA FAYETTE
9.8
GREEN
15.5
ROCK
22.1
WALWORTH
18.6
RACINE
21.9
KENOSHA
24.1
RATE PER
100,000 POPULATION
50 and over
40 - 49
30 - 39
20 - 29
10 - 19
0 9

EXPENDITURES FOR CARE OF TUBERCULOSIS IN WISCONSIN SANATORIA; RATE CHANGES; DATA ON CASES

	Expenditures for Care of Tuberculosis 1942–43	Population 1940	Per Capita Expenditure 1942–43	Average Death Rate 1934–36	Average Death Rate 1940–42	Percent Change Death Rate 1935–41	Estimated† Cases 1943	Known Cases Dec. 1943	Undiscovered Cases 1943
Adams	15.00	8,449	*	25.0	23.7	5.2—	30	3	27
Ashland	25,500.10	21,801	1.17	50.7	41.3	18.5—	135	72	63
Barron	17,812.67	34,289	.52	32.1	15.6	51.4—	80	39	41
Bayfield	14,895.28	15,827	.94	66.6	48.4	37.6—	114	57	57
Brown	47,459.85	83,109	.57	25.3	19.7	22.1—	245	115	130
Buffalo	3,566.48	16,090	.22	15.2	16.6	9.2+	39	9	30
Burnett	8,721.52	11,382	.77	39.1	23.4	40.2—	39	24	15
Calumet	12,369.29	17,618	.70	19.8	17.0	14.1—	39	9	30
Chippewa	21,807.13	40,703	.54	31.0	17.2	44.5—	105	43	62
Clark	20,265.47	33,972	.60	19.5	15.7	19.5—	80	28	52
Columbia	24,911.83	32,517	.77	30.6	16.4	46.4—	80	52	28
Crawford	13,445.45	18,328	.73	19.9	10.9	45.2—	30	30	0
Dane	148,148.75	130,660	1.13	28.5	17.6	38.2—	350	270	80
Dodge	17,481.70	54,280	.32	33.5	15.4	54.0—	125	30	95
Door	13,303.65	19,095	.70	14.7	15.7	6.8+	45	24	21
Douglas	56,903.91	47,119	1.21	54.4	40.3	25.9—	285	160	125
Dunn	7,342.83	27,375	.27	24.7	17.0	31.2—	69	24	45
Eau Claire	10,307.52	46,999	.22	20.4	14.9	27.0—	105	42	63
Florence	9,918.86	4,177	2.37	61.2	55.9	8.7—	35	15	20
Fond du Lac	19,787.02	62,353	.32	30.0	19.2	36.0—	174	48	126
Forest	6,754.07	11,805	.57	49.4	50.8	2.8+	90	21	69
Grant	8,046.79	40,639	.20	19.9	14.8	25.6—	90	49	41
Green	8,898.32	23,146	.38	22.8	11.5	49.6—	39	14	25
Green Lake	6,868.45	14,092	.49	26.4	26.0	1.5—	54	10	44
Iowa	11,591.79	20,595	.56	13.3	27.5	106.8+	84	14	70
Iron	23,324.48	10,049	2.32	94.0	59.7	36.5—	90	29	61
Jackson	10,842.20	16,599	.65	20.2	24.1	19.3+	60	18	42
Jefferson	22,422.47	38,868	.58	34.0	18.9	44.4—	110	53	57
Juneau	12,101.97	18,708	.65	46.3	21.4	53.8—	60	31	29
Kenosha	36,867.15	63,505	.58	24.0	23.1	3.8—	219	99	120
Kewaunee	10,005.54	16,680	.60	18.7	26.0	39.0—	65	22	43
La Crosse	37,292.01	59,653	.63	34.9	21.2	39.3—	189	94	95
Lafayette	12,089.48	18,695	.65	28.6	8.9	68.9—	24	23	1
Langlade	11,580.06	23,227	.50	29.4	23.0	21.8—	80	18	62
Lincoln	19,362.75	22,536	.86	28.5	22.2	22.1—	75	38	37
Manitowoc	33,220.81	61,617	.54	32.4	23.3	28.1—	215	70	145
Marathon	51,427.79	75,915	.68	25.9	20.2	22.0—	230	93	137
Marinette	23,414.19	36,225	.65	44.7	20.2	54.8—	110	59	51
Marquette	4,787.35	9,097	.53	24.9	33.0	32.5+	45	8	37
Milwaukee	627,949.15	766,885	.82	49.2	36.4	26.0—	4,190	1,323	2,867
Monroe	18,657.10	30,080	.62	19.7	14.4	26.9—	65	29	36
Oconto	7,936.37	27,075	.29	30.3	28.3	6.6—	110	22	88
Oneida	12,277.09	18,938	.65	36.5	17.6	51.8—	50	19	31
Outagamie	40,986.97	70,032	.59	40.6	19.0	53.2—	200	78	122
Ozaukee	8,092.25	18,985	.43	15.1	28.1	86.1+	75	18	57
Pepin	4,360.76	7,897	.55	22.4	12.7	43.3—	15	9	6
Pierce	4,740.95	21,471	.22	22.2	10.9	50.9—	35	14	21
Polk	13,223.17	26,197	.50	32.6	17.8	45.4—	69	26	43
Portage	23,940.96	35,800	.67	28.5	33.5	17.5+	180	37	143
Price	16,676.35	18,467	.90	40.5	19.9	50.9—	60	26	34
Racine	82,983.11	94,047	.88	33.2	16.3	50.9—	230	149	81
Richland	15,822.77	20,381	.78	30.7	6.5	78.8—	20	28	
Rock	46,817.27	80,173	.58	29.7	20.0	32.7—	240	125	115
Rusk	4,683.27	17,737	.26	18.7	11.3	39.6—	30	15	15
St. Croix	13,963.63	24,842	.56	24.9	10.7	57.0—	39	24	15
Sauk	11,228.39	33,700	.33	34.3	22.7	33.8—	110	22	88
Sawyer	13,628.30	11,540	1.18	62.6	54.9	12.3—	95	27	68
Shawano	15,258.21	35,378	.43	46.7	33.0	29.3—	174	51	123
Sheboygan	64,320.98	76,221	.84	31.4	24.9	20.7—	285	103	182
Taylor	9,630.12	20,105	.48	45.2	19.9	56.0—	60	29	31
Trempealeau	19,558.21	24,381	.80	30.7	17.8	42.0—	65	18	47
Vernon	22,402.55	29,940	.75	40.9	23.4	42.8—	105	33	72
Vilas	7,108.44	8,894	.80	31.2	33.7	8.0+	45	26	19
Walworth	24,493.03	33,103	.73	27.5	14.1	48.7—	69	31	38
Washburn	10,218.78	12,496	.82	18.0	13.3	26.1—	24	17	7
Washington	9,477.03	28,430	.33	21.2	10.6	50.0—	45	27	18
Waukesha	31,602.24	62,744	.50	33.3	26.6	20.1—	249	60	189
Waupaca	14,448.70	34,614	.42	30.8	20.2	34.4—	110	34	76
Waushara	10,023.63	14,268	.70	34.7	14.0	59.7—	30	20	10
Winnebago	72,447.87	80,507	.90	29.1	20.3	30.2—	245	173	72
Wood	20,764.65	44,465	.47	23.2	14.2	38.8—	95	34	61
Total	2,144,584.28	3,137,587	.68	35.5	24.6	30.7—	11,547	4,504	7,043
State-at-Large	76,385.41								
	2,220,969.69		.70						

† Average yearly death rate 1940-42 × 15.

* Less than one cent per capita.